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First records of *Nausigaster flukei* (Diptera: Syrphidae) from Argentina

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Abstract: *Nausigaster flukei* Curran is recorded for the first time from Argentina. New specimens were collected in Mendoza, Jujuy and La Rioja provinces (Argentina), in the Monte and Chaco Phytogeographical Provinces. New records broaden the distribution of this species previously known from Paraguay and south Brazil and represent the first record of the genus *Nausigaster* from Argentina since 1892.

Key words: new records; flower flies; hoverflies; Monte Desert; Chaco

Flower flies (Diptera, Syrphidae) are one of the most diverse families of Diptera, with more than 200 genera and over 6,000 described species worldwide (Brown 2009; Thompson 2013). Adults of this family play a crucial role as pollinators in natural environments and crops, and their larvae are used as biological control agents of pests and are important recyclers of organic matter. For these reasons, flower flies are good bioindicators of the quality of environments and ecosystems (Sommaggio 1999; Burgio and Sommaggio 2007). Nevertheless, the Neotropical syrphid fauna, with 60 genera and about 1,800 described species to date, is still poorly known and more species await description (Thompson et al. 1976, 2010; Thompson 1999). In Argentina, faunistic studies and new records on flower flies are occasional, and some 170 species and 38 genera are reported for this country (Montoya et al. 2012). Lynch Arribálzaga (1891–1892) published the first faunal inventory for Argentina, and Bréthes (1907) presented an overview of the Argentinean dipterans in his catalogue. Since then and besides catalogues, Argentine species of Syrphidae have been treated in short revisions and taxonomic works with a broader scope, e.g., Shannon (1927a, 1927b), Shannon and Aubertin (1933), Blanchard (1938), Lane (1963), Lagrange (1989, 1990, 1993), Kassebeer (1999) or Wakeham-Dawson et al. (2009) among others. Research on Syrphidae species present in agricultural crops has brought attention more recently (Greco 1995, 1998; Valenciano and Paravano 2002; Bertolaccini et al. 2008; López García and Maza 2013), and works based on collections, such as Bachmann (2012), provide a good starting point to study the Syrphidae fauna in Argentina.

Nausigaster Williston is an endemic New World genus, found from the southern United States to Argentina and is absent from the Chilean subregion (Thompson et al. 2010). *Nausigaster* species are small flies with tuberculate face, body densely punctate and round abdomen in sectional view with large terga. There are 15 described species of *Nausigaster*, with nine taxa in the Neotropical Region (Thompson et al. 2010) and only one species cited and described from Argentina, *Nausigaster bonariensis* Lynch Arribálzaga, 1892 (Lynch Arribálzaga 1892; Curran 1941; Bachmann 2012). Larvae of *Nausigaster* are saprophagous in wet decaying plant tissues, decaying cacti (Cactaceae) and decaying bromeliads (Bromeliaceae) (Hunter et al. 1912; Carrera et al. 1947; Rotheray et al. 2000), and probably other plants in arid or open habitats.

Nausigaster flukei Curran is a small to medium-sized flower fly with abdominal tergum 2 produced basolaterally into a spur, and a particular wing pattern: extensive dark maculae connected along vein r_{4+5} and cell R_1 infuscated subapically. It was originally described from Villarica, Paraguay (Curran 1941), and later Carrera et al. (1947) reported it from Pôrto Cabral (São Paulo) and Iguassú (current Laranjeiras do Sul, Paraná), in Brazil (Figure 1). As pointed out by Carrera et al. (1947), some original descriptions do not fit well in the single published key for this genus (Curran 1941), and the intraspecific variability is not well-known since specimens of this genus are present in collections in low number. Hence, *Nausigaster* is in a serious need of taxonomic revision.

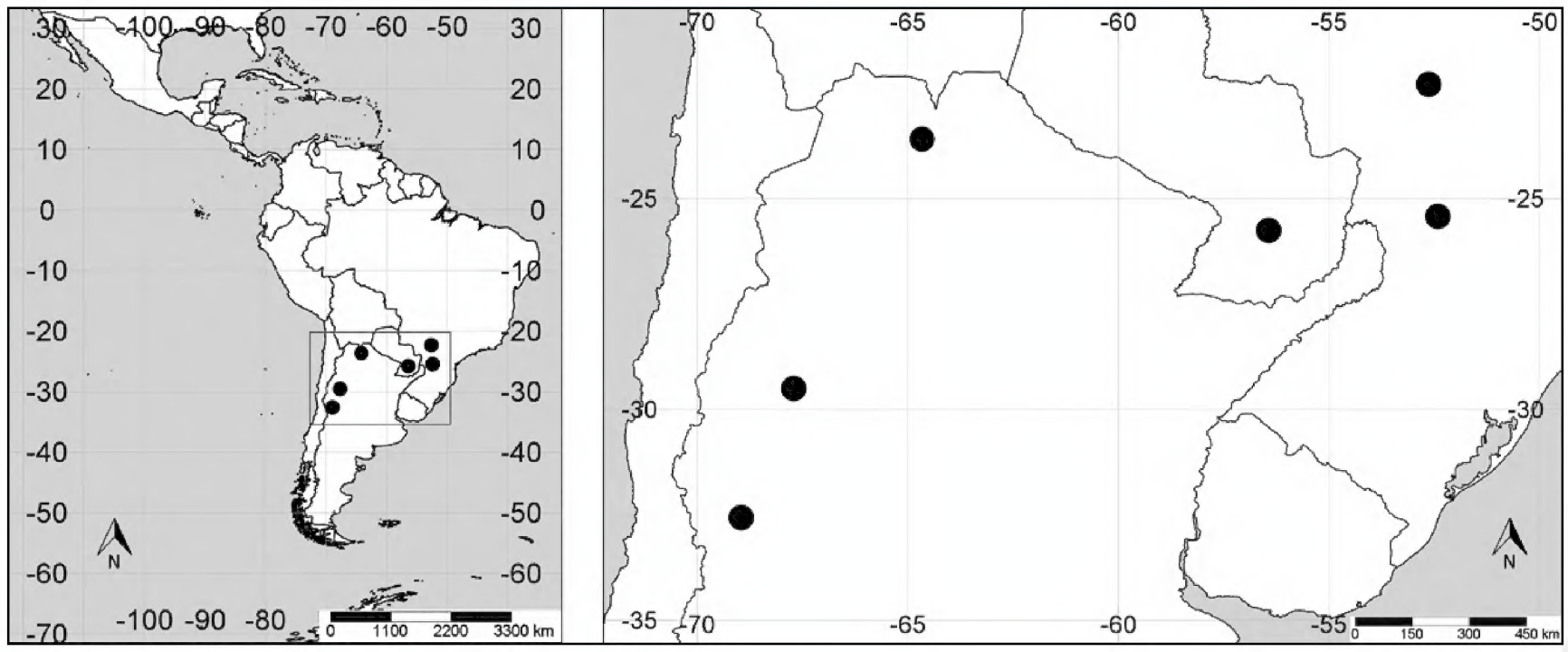

Figure 1. Records of *Nausigaster flukei* in Brazil, Paraguay and Argentina.

Material examined: ARGENTINA: Mendoza, Villavicencio Nature Reserve, 1,183 m, 32°33′52.0″ S, 068°57′14.2″ W, 8 February – 8 March 2014, Malaise trap. López García, G.P. [1♀ IADIZA]; La Rioja, 40 km SW of Chilecito, Cuesta de la Miranda, 1,610 m, 29°29′55″ S, 067°42′16″ W, 24 February 1978, hand net. Vecht, J.v.d. [1♂ ZFMK, ZFMK DIP 00011897; 1♂ RMNH, ZFMK DIP 00011898]; Jujuy, Caimancito, 378 m, 23°44′24″ S, 064°35′32″ W, 14 March 1978. Vecht, J.v.d. [1♂ 1♀ RMNH, ZFMK DIP 00011958, 00011959].

Distribution maps were created using SimpleMappr (Shorthouse 2010).

New specimens from Argentina were identified using original descriptions and identification keys for the species of *Nausigaster* (Curran 1941; Thompson 2006), and morphologically compared with other species material from several collections. New material of *N. flukei* is deposited in the entomological collection of the Argentine Institute for Arid Zones Research (IADIZA), Mendoza (Argentina), in the Naturalis Biodiversity Center (RMNH), Leiden (The Netherlands), and in the Zoologisches Forschungsmuseum Alexander Koenig (ZFMK), Bonn (Germany).

Very little is known about the natural history of *Nausigaster* and their distribution in Argentina and in the Neotropical Region. The present work reports the first records of *N. flukei* from Argentina, extending the geographical range of the species more than 1,000 km in a southwest direction (Figure 1). The specimens collected in Mendoza, Jujuy and La Rioja provinces represent the first record of the genus in this country since Lynch Arribálzaga (1892), more than 100 years ago. Moreover, these specimens of *N. flukei* are the first records of these flower flies species associated with arid and semiarid ecosystems in the Central and Northern Monte Phytogeographical Province and in the Chaco Phytogeographical Province (Morrone 2001, 2014). Larvae of *Nausigaster* may play an important ecological role in these ecosystems as recyclers of organic matter, helping in the decomposition of plant tissues. However, arid and semi-arid habitats are often overlooked in field expeditions or faunistic studies, and they lack a good knowledge on their fauna and ecology. The fact that these records represent the first citation of *Nausigaster* in those Argentinean provinces and the first record of this genus from Argentina since 1892, points out the necessity to carry out faunistic studies in arid and semi-arid environs in order to understand the crucial role that invertebrates have in the decomposition and pollination processes, especially syrphid flies (Marcos-García and Pérez-Bañón 2002; Nderitu et al. 2008; Martínez-Falcón et al. 2012; Andersen and Nelson 2013; Bodlah and Waqar 2013; Traveset et al. 2013, Neil et al. 2014). Furthermore, Monte Phytogeographical Province is threatened by habitat conversion, while Chaco Phytogeographical Province is threatened by overgrazing of domestic livestock, seasonal fires and conversion of natural habitats for agriculture (Dinerstein et al. 1995). These threats urge to study these unique environs in order to have a better knowledge of the habitat dynamics and their fauna.

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